



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

13

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 09/896,689 | 06/29/2001 | Robert Jacques | ACX-135 | 8713 |
| 7590 | 01/04/2005 | | EXAMINER | |
| Cymer, Inc. Legal Dept. MS/ 4-2C 17075 Thormint Court San Diego, CA 92128 | | | HARTMAN JR, RONALD D | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2121 | |

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|----------------------|-----------------|
| Office Action Summary | Applicant No. | Applicant(s) |
| | 09/896,689 | JACQUES, ROBERT |
| | Examiner | Art Unit |
| | Ronald D Hartman Jr. | 2121 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 15 September 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-64 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) 1-25,29-34,36-38,45-51,53-57 and 59-64 is/are allowed.
 6) Claim(s) 28,35,39-44,52 and 58 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

1. Claims 1-64 are presented for further examination.

Claim Interpretations

2. Claims 1, 22, 25, 29, 33-34, 36 and 42 are confusingly written because they recite that data is measured during an "abnormal period" and that the data is indicative of the behavior of the machine when in "normal" use. These features appear to contradict one another since if an abnormal period (off-line) initiates the data gathering, then the machine is *not* actually operating during normal operation, as the claims would suggest. The examiner has interpreted these features to essentially disclose that the data measuring occurs *during* an abnormal period, and that this abnormal period *occurred* during the normal operation of the machine, in other words, the start of the abnormal period is equivalent to the end of the normal operations for the machine (i.e. abnormal period = end to normal operations).

Claim Objections

3. Claims 54 and 57 are objected to because they first refer to a mathematical filter, then refer to this filter as simply a filter, then refer to the filter as a universal filter. The examiner has therefore interpreted the mathematical filter to be the equivalent of the universal filter.

Specification Objections

- "abnormal period" which appears throughout most of the claims appears only in the claims. The specification, [0012], refers to "abnormal use" when it is "off-line" and this is how the examiner has interpreted "abnormal period", that is, when the apparatus (e.g. machine) is in an off-line state.
- "universal filter" which appears in most of the claims appears only in the claims.
- "portable", as per claim 9, appears only in the claims.

- both "passage of a predetermined length of time" and "threshold", as per claim 11, appear only in the claims.
- "proximity" of claims 1, 18, 32, 45, 49, appears only in the claims.
- "multivariate" and "fully-coupled" of claims 18, 22 and 46-52 appears only in the claims.
- "first mathematical model", "second mathematical model", "first controller", "well-predicted" and "second controller", as per claims 29, 36, 48, 51, 54, 57, all appear only in the claims.
- "behavioral range" of claims 30-31 and 37-38 appears only in the claims.
- Claim 26, "start event" appears only in the claims.
- Claim 39, "temporary control signal", "pre-selected control signal", "disabling", "preexisting model" and "means for connecting" only appears in the claims, and furthermore, as these features represent limitations which were not present in the application as originally filed (originally filed with claims 1-31), they appear to represent new matter and are rejected as such below.
- Claims 42, 52 and 58, "disabling", "temporary control signal generator", "pre-selected control signals and "preexisting model" appear only in the claims, and furthermore, as these features represent limitations which were not present in the application as originally filed (originally filed with claims 1-31), they appear to represent new matter and are rejected as such below.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 39-41, 42-44, 52 and 58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s)

contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The following features were not supported by the specification, as originally filed:

- a "temporary control signal", a "pre-selected control signal", use of "disabling", a "preexisting model" and a "means for connecting...".

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 26-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Wojsznis et al., U.S. Patent No. 6,577,908.

As per claim 26, Wojsznis et al. teaches a method for creating an updated motion model using a previously stored model for governing the operations of a system, the method comprising:

- detecting the occurrence of a start event (e.g. model evaluation scan; C7 L15);
- gathering data relating to the motion characteristics of the system (e.g. provides a set of predetermined initialization parameters; C7 L16);
- updating the stored model by comparing the gathered data to the stored model and iteratively adapting the stored model until the stored model

- predicts the motion characteristics of the system (e.g. using the supervisor component to incrementally adapt the model parameters; C7 L62- C8 L15); and
- storing the updated model in an electronic memory location accessible by a system controller (e.g. inherent to Wojsznis et al. since clearly the models *must* be stored before they may be retrieved, and therefore this feature is sufficiently contemplated by the capabilities of Wojsznis et al's disclosed system).

As per claim 27, Wojsznis et al. further teaches the gathering of frequency data in response to an induced motion of the system (e.g. C2 L40-65).

As per claim 28, Wojsznis et al. further teaches non-linear curve fitting for gathered data (e.g. recursive least squares; C2 L31-32).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wojsznis et al., U.S. Patent No. 6,577,908, in view of Junk et al., U.S. Patent No. 6,128,541.

As per claim 35, the rejection of claim 26 from above is applied equally herein.

Furthermore, as per claim 35, Wojsznis et al. does not specifically teach gathering data during a period when the system is not in operation based on pre-

selected induced control signals. This feature has been interpreted to be essentially the equivalent to a feature wherein the system may be tuned off-line, wherein a command is issued to instruct the system to become off-line (e.g. turn it off).

Junk teaches an optimal auto-tuner for use in a process control network wherein the auto-tuning can occur while the system is off-line or on-line (e.g. C9 L4-7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Junk into the system disclosed by Wojsznis et al. for the purpose of allowing a tuning method which can be performed while the system is operating or while the system is not, thereby forming a more flexible tuning methodology, and this would have been obvious to one of ordinary skill in the art at the time the invention was made.

Allowable Subject Matter

7. As per claims 1-17, 19-21 and 62-64, specifically independent claim 1, the prior art of record fails to teach a control system comprising a sensor and a processor which includes a tunable controller based on an initial behavioral model wherein the processor adapts the initial model to an updated model based upon the acquired data, *combines the updated with a universal filter* to create a relation that describes the behavior of the apparatus and creates a controller based on the relation such that the controller is tuned according to the updated model, in combination with the other claimed features.

The use of the universal filter, whose functions can be graphically referenced by viewing Figure 7, in addition to the other claimed features, obviates the need for programming a new filter for each configuration of equipment, thus saving time, money, processing power and computer programming time.

As per claim 18, the same rational for claim 1 is applied equally herein. That is, the prior art of record fails to teach or adequately suggest the use of combining the specific universal filter, as described by [0051] and claim 6, with an updated model so

as to provide a relation that is used to control the behavior of an apparatus, in combination with the other claimed features and or limitations as claimed.

As per claims 22-24, specifically independent claim 22, the same rational for allowing claims 1 and 18 is equally applied herein.

Furthermore, the following list of claims are believed to be allowable for at least the same reasons as set forth above with respect to claims 1 and 18:

Claims 25, 30-34, 37-38, 45-47, 49-50, 53-57 and 59-61.

As per claims 29, 36, 48 and 51, the claimed "mathematical filter" is interpreted to be the functional equivalent of the aforementioned "universal filter" and therefore, for at least the same reasons as set forth with respect to claims 1 and 18 above, the instant claims (29, 36, 48 and 51) are deemed to be allowable, that is, the use of a specific filter in conjunction with a control system that utilizes a modal updating feature so as to obviate the need for programming a new filter for each configuration of equipment, thus saving time, money, processing power and computer programming time, in combination with the other claimed features and or limitations as claimed.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald D Hartman Jr. whose telephone number is (571) 272 - 3684. The examiner can normally be reached on Mon. - Fri., 10:00 am - 6:30 pm EST.

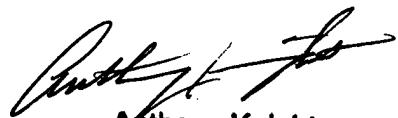
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached at (571) 272 - 3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ronald D Hartman Jr.

Patent Examiner

Art Unit 2121



Anthony Knight
Supervisory Patent Examiner
Group 3600